

PHYS342

Quantum Field Theory and the Standard Model

Important Note

The course description on the web page <http://www.uib.no/en/course/PHYS342> is outdated, because the study administration is refusing to update it.

Pensum / Syllabus

- Interacting Quantum Fields
- Feynman Rules of Quantum Electrodynamics (QED)
- Cross Sections for QED Processes
- Radiative Corrections and Renormalization
- Quantum Chromodynamics (QCD)
- Electroweak Theory
- The Standard Model
- CP Violation
- Neutrino Physics

The lecture is based mainly on chapters 6–11 and 14–19 of Mandl & Shaw. The required knowledge for the exam will be the content of the lectures and the problem sets.

Literature

- Mandl and Shaw, Quantum Field Theory
- Peskin and Schroeder, An Introduction to Quantum Field Theory
- Weinberg, The Quantum Theory of Fields, Vol. 1 and 2
- Zee, Quantum Field Theory in a Nutshell
- Halzen and Martin, Quarks and Leptons
- Cheng and Li, Gauge Theory of Elementary Particle Physics
- Langacker, The Standard Model and Beyond
- Schwartz, Quantum Field Theory and the Standard Model